Executive Summary

Introduction

The National Park Service in Yosemite National Park proposes to replace the South Fork Merced River Bridge (South Fork Bridge) in Wawona by the end of 2004. The bridge is located north of the historic Wawona Hotel, just inside the park's South Entrance. In order to cross the South Fork of the Merced Wild and Scenic River, all vehicle traffic along Wawona Road (Highway 41) must use this bridge, which conveys nearly one- third of Yosemite's annual visitors.

The South Fork Bridge was constructed in 1931 as a triple- span, steel- girder, deck bridge supported by spread concrete footings, two unreinforced cement rubble in- stream piers, and two unreinforced cement rubble abutments. The bridge is 134- feet long, 29- feet wide, and provides two 10- foot- wide travel lanes; however, there are no sidewalks or bridal paths on this structure. Like several other bridges of this era, the South Fork Bridge was characterized by massive log stringer façades and wooden guardrails, giving the appearance of being a rustic log structure. The bridge has been evaluated for inclusion on the National Register of Historic Places. However, it was determined ineligible due to reconstruction that had compromised the structural and architectural integrity.

In 1992, a structural bridge inspection identified deflection (bending) in the steel girders, requiring the park to impose weight restrictions on load limits to 7 tons. Although considered critically deficient, the bridge was allowed to remain in service. During a 1993 hydraulic review, a scour hole created by the river was discovered under one pier, resulting in a recommendation for complete bridge reconstruction. The structural integrity and safety of the bridge was further degraded by the January 1997 flood, which increased scouring around the piers and abutments. As a result, the South Fork Bridge was condemned, closed, and in 1998, its function was transferred to an adjacent temporary bridge.

Following the 1992 inspection by the Federal Highway Administration, it was determined that the South Fork Bridge would be replaced. An environmental assessment was released in 1996, detailing the removal and replacement of the South Fork Bridge, a Finding of No Significant Impact was signed, and the design phase for the project was implemented. However, a 1999 lawsuit on the El Portal Road Improvement Project resulted in halting plans to remove and replace the South Fork Bridge until completion of an approved comprehensive management plan for the Merced Wild and Scenic River. A Record of Decision for the *Merced Wild and Scenic River Comprehensive Management Plan* was signed in August 2000, and was revised in November 2000. This environmental assessment supercedes the 1996 Environmental Assessment, Replace South Fork Merced River Bridge Project, and the corresponding Finding of No Significant Impact is rescinded.

Purpose and Need

The purpose of the South Fork Merced River Bridge Replacement Project is to:

- Protect visitor health and safety by eliminating and replacing the condemned and closed bridge with a wider, safer structure; by opening the permanent roadway; and by removing the concrete barriers.

- Remove the temporary bridge, which has served beyond its original intent and has created a visual intrusion on an otherwise popular scenic location.
- Protect the park infrastructure from bridge collapse, specifically the reclaimed waterline and sewerline, high- voltage electrical line conduit, and telecommunication lines that are attached to the bridge.
- Prevent the difficult and potentially dangerous removal of bridge debris from the river that would result if the bridge collapsed.
- Protect park resources from localized flooding that could result from uncontrolled bridge collapse and subsequent damming during a high- flow period.
- Protect and enhance the Merced Wild and Scenic River's Outstandingly Remarkable Values by removing impediments to the free- flowing condition of the river.

The need for the proposed project arose from structural deficiencies coupled with 1997 flood damage that led to the South Fork Bridge being condemned and closed.

Relationship to Other Plans

The Yosemite National Park *General Management Plan*, and the *Merced Wild and Scenic River Comprehensive Management Plan* are the guiding documents for the *South Fork Merced River Bridge Replacement Environmental Assessment*. The proposed project is located within the boundaries of the Merced Wild and Scenic River, which includes the South Fork Merced River. The *General Management Plan* is the overall guiding document for planning in Yosemite National Park. In designating the South Fork and main stem of the Merced as a Wild and Scenic River in 1983, Congress authorized the National Park Service to prepare a management plan for the river by making appropriate revisions to the *General Management Plan* (16 USC 1274(a)(62)). The *Merced Wild and Scenic River Comprehensive Management Plan*, which is a programmatic plan that derives its authority from the Wild and Scenic Rivers Act, made certain revisions to the *General Management Plan* to further the protection of the Merced River and its designated tributaries.

Overview of the Alternatives and Environmental Assessment

The *South Fork Merced River Bridge Replacement Environmental Assessment* presents and analyzes two alternatives. The alternatives are described briefly in this section and in detail in Chapter II, Alternatives. Four additional alternatives were considered and rejected for reasons also described in Chapter II, Alternatives.

Chapter III, Affected Environment, describes the setting and condition of the area affected by the *South Fork Merced River Bridge Replacement Environmental Assessment*. Chapter IV, Environmental Consequences, analyzes the environmental impacts associated with each of the alternatives.

Alternative 1: No Action

The No Action Alternative represents conditions as they currently exist for the South Fork Bridge. It provides the basis for comparison of the Preferred Alternative.

Under the No Action Alternative, the South Fork Bridge would continue to deteriorate and would eventually collapse, likely during high- flow conditions. Bridge- related debris would be deposited downriver and deposition of debris could adversely affect natural, cultural, and scenic resources. Sudden collapse of the bridge could result in serious injuries and/or fatalities to any users in this segment of the river. Utility lines attached to the bridge would rupture, resulting in raw sewage flowing into the river and loss of services for the Wawona Hotel and other facilities for a period of two to five days. Depending upon river flow conditions during a release of raw sewage, the impacts would consist of adversely affecting downstream domestic water supplies, recreation, aquatic wildlife, and vegetation, and would result in regulatory clean- up and abatement orders. The National Park Service would remove bridge debris from the South Fork Merced River as soon as possible following bridge collapse, but retrieval may be delayed for several months until a low- flow period occurs. Any diverted river flows resulting from damming effects of the failed structure could result in erosion of the riverbanks and associated natural and cultural resources. However, over the long term, uncontrolled failure of the South Fork Bridge resulting in pier removal would restore free flow of the South Fork Merced River at this site. The temporary bridge would remain in place to convey Wawona Road vehicle traffic.

Alternative 2: South Fork Merced River Bridge Replacement (Preferred Alternative)

Alternative 2 would entirely remove the existing bridge, replace it with a single- span bridge, and would remove the temporary bridge and access. Alternative 2 would involve separating the South Fork Bridge into liftable segments and removing them with heavy equipment. A temporary containment system would be installed beneath the bridge to catch small amounts of debris that might fall during removal. The smaller debris could include slurry from concrete saws, masonry, and steel fragments. A temporary structural support system may be installed to prevent uncontrolled collapse of the bridge structure during demolition. All construction materials, demolition materials, and the temporary bridge would be hauled to and stored at the Wawona District Materials Storage Area near the National Park Service ranger office. All materials that could be recycled would be reused within Yosemite National Park.

Removal of the South Fork Bridge would have short- term demolition and construction- related impacts on natural, cultural, and social resources. Because demolition and construction would occur in a controlled manner (e.g., within a delineated work area during low- flow conditions with the application of Best Management Practices), Alternative 2 would avoid the more pronounced effects of uncontrolled bridge failure and debris retrieval activities described under the No Action Alternative. Demolition- related impacts would be reduced by application of Best Management Practices and resource- specific mitigation measures described in Chapter II, Alternatives. Regrading and revegetation following construction and removal activities would increase riverbank integrity resulting in beneficial effects on soils, water quality, cultural resources, and biological resources. Controlled bridge removal and construction of a single- span bridge would restore the free- flowing condition to the South Fork of the Merced River, thereby enhancing both its biologic and hydrologic integrity. Alternative 2 would have a long- term, beneficial effect on natural and scenic resources because it would return portions of the riverbank to a more natural state, restore the active flood regime and fluvial processes, and improve views from the riverbank.

Environmentally Preferable Alternative

The Council on Environmental Quality regulations implementing the National Environmental Policy Act and the National Park Service National Environmental Policy Act guidelines require that "the alternative or alternatives which were considered to be environmentally preferable" be identified (Council on Environmental Quality Regulations, Section 1505.2). Environmentally preferable is defined as "the alternative that will promote the national environmental policy as expressed in the National Environmental Policy Act, Section 101. Ordinarily this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources" (Council on Environmental Quality 1981).

Section 101 of the National Environmental Policy Act states that "… it is the continuing responsibility of the Federal government to … (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations; (2) assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings; (3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences; (4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice; (5) achieve a balance between population and resource use, which will permit high standards of living and a wide sharing of life's amenities; and (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources." The environmentally Preferred Alternative for the South Fork Merced River Bridge Replacement Project is based on these national environmental policy goals.

Alternative 1: No Action

The No Action Alternative represents conditions and management practices as they currently exist for the South Fork Bridge. Alternative 1 would adversely affect the first provision by not being an effective trustee of the environment for succeeding generations as it allows a condemned bridge located on a major park transportation artery to further deteriorate. The provision of productive and aesthetically and culturally pleasing surroundings (provision 2 of the national environmental policy goals) would be adversely affected due to the uncontrolled collapse of the existing structure and the unattractive character of the temporary bridge. Alternative 1 would not fulfill provision 3 of the goals, because risks to public health and safety would worsen under this alternative due to the uncontrolled failure of the South Fork Bridge. Lastly, Alternative 1 would not preserve natural resources as required under provision 4, because eventual bridge failure would lead to sudden bank erosion and raw sewage flowing into the river that would affect soils, water quality, and biological resources, including riparian vegetation and special- status aquatic species.

Alternative 2: South Fork Merced River Bridge Replacement (Preferred Alternative)

Alternative 2 includes demolition and removal of the existing bridge, replacing it with a bridge with no in- river piers, removing the temporary bridge and access road, and providing site restoration and revegetation. Because demolition would be performed in a controlled manner (e.g., in a designated work area during low- flow conditions), Alternative 2 would avoid the more pronounced adverse effects of uncontrolled bridge failure and subsequent debris retrieval activities described under Alternative 1. The application of mitigation measures described in Chapter II, Alternatives, would further reduce the potential adverse impacts of this alternative.

The provision of aesthetically pleasing surroundings (provision 2 of the goals) would be improved by replacing the existing bridge, removing the temporary Bailey bridge, and providing site restoration. Alternative 2 would fulfill provision 3 of the goals by reducing risks to public health and safety through the controlled demolition of the bridge and application of mitigation measures to reduce hazards to visitors. Alternative 2 would preserve natural and cultural resources, as required under provision 4 of the goals. This alternative would implement measures to reduce adverse effects related to demolition activities using Best Management Practices and includes site restoration to increase riverbank stability and biological integrity.

Environmentally Preferable Alternative

The environmentally preferable alternative is Alternative 2 because of the alternatives considered in detail, it most fully satisfies the national environmental policy goals as stated in Section 101. Alternative 2 would (1) provide a high level of protection of natural and cultural resources while concurrently attaining the widest range of beneficial uses of the environment without degradation; (2) reduce risks to public health and safety; and (3) provide an aesthetically pleasing surrounding.